

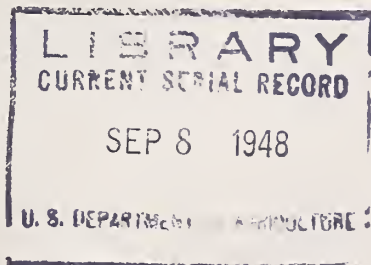
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Foreign Agriculture

ISSUED BY
OFFICE OF FOREIGN AGRICULTURAL RELATIONS, U. S. D. A.
WASHINGTON, D. C.

SEPTEMBER
1948



Foreign Agriculture

Vol. XII • SEPTEMBER 1948 • No. 9

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FRONT COVER

Droving Sheep in Australia

Sheep are of such vital importance to Australia that one may truthfully say that the Commonwealth is "carried on the sheep's back." The country has one-sixth of the world's sheep but produces one-fourth of the world's fine wool. (Photo by courtesy of the Australian News and Information Service, N. Y. C.)

BACK COVER

World Map—Distribution of Wool Production

The Southern Hemisphere, with about 60 percent of the wool production of the world, supplies more than 80 percent of the total entering world trade.

NEWS NOTES

Dr. Englund Honored

Eric Englund, Agricultural Attaché to Sweden and Finland, on leave from position of Chief of OFAR's Regional Branch, has been elected to foreign membership in the Royal Swedish Academy of Agriculture, founded in 1811 "to promote development and well-

being of agriculture and related pursuits, with the aid of science and experience." Members are chosen on professional grounds. The foreign members, now representing 13 countries, include 10 Americans.

Mr. Howard Succeeds Mr. Wall as Head of OFAR's Information Work

James O. Howard, formerly of the Office of the Secretary of Agriculture became head of Information work in the Office of Foreign Agricultural Relations, effective with the resignation of *Duncan Wall*, July 30.

Mr. Wall has become Director of Information for the Food and Agriculture Organization of the United Nations. During the past year, in addition to heading the information work of OFAR, he served as Special Assistant to the Director.

Mr. Howard was previously engaged in special writing assignments for the Secretary, working in collaboration with the Office of Information. During the war he wrote educational material for the Army. Prior to that he taught International Relations at Duke University, Durham, N. C., and worked in the Bureau of Agricultural Economics, U. S. D. A.

Dr. Pendleton an Honor Member

The American Geographical Society, of New York, a world leader in geographical exploration and publication, has, for the first time in many years, elected Honorary Members. *Robert L. Pendleton*, Technical Collaboration Branch, OFAR, was one of the first seven so honored.

CORRECTION: In June issue of this magazine, the percentage figure in 17th line from bottom of column 2, p. 128, should read 38 instead of 8, see table 1, p. 126.

Credit for photos is given as follows: T. E. Burke, U. S. Cons. Rpt. No. 1, Amer. Vice Cons., Punta Arenas, Chile, p. 190; U. S. Soil Conservation Serv. (2), p. 198.

FOREIGN AGRICULTURE

HALLY H. CONRAD, EDITOR

A monthly publication of the Office of Foreign Agricultural Relations of the United States Department of Agriculture, Washington, D. C. The matter contained herein is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, with the approval of the Director of the Budget. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 15 cents per copy, or by subscription at the rate of \$1.50 per year, domestic; \$2.00 per year, foreign. Postage stamps will not be accepted in payment.

Wool and Its International Importance

After food, man's greatest need is for clothing and shelter. Wool is one of the most essential agricultural products for protection against climatic rigors and therefore ranks high, along with food, in world trade.



by FLOYD E. DAVIS

Wool is an important commodity in the economy and trade of most temperate- and cold-climate countries of the world. It is a major product in the five principal Southern Hemisphere producing countries of Australia, Argentina, New Zealand, South Africa, and Uruguay, which normally supply more than 80 percent of the wool entering world trade. In a few other Southern Hemisphere countries, it is of considerable significance in their domestic economies but is of less international importance.

Sheep raising is an important enterprise over wide areas in the western part of the United States, and farm flocks are a valuable asset in many midwestern and eastern areas. The status of the wool enterprise has entered prominently into national discussions. In addition to being a large producer of wool, the United States is the largest wool-consuming nation and in times of national prosperity has been one of the world's largest importers. A large number of indus-

trial communities in eastern United States are occupied with the handling and manufacture of wool.

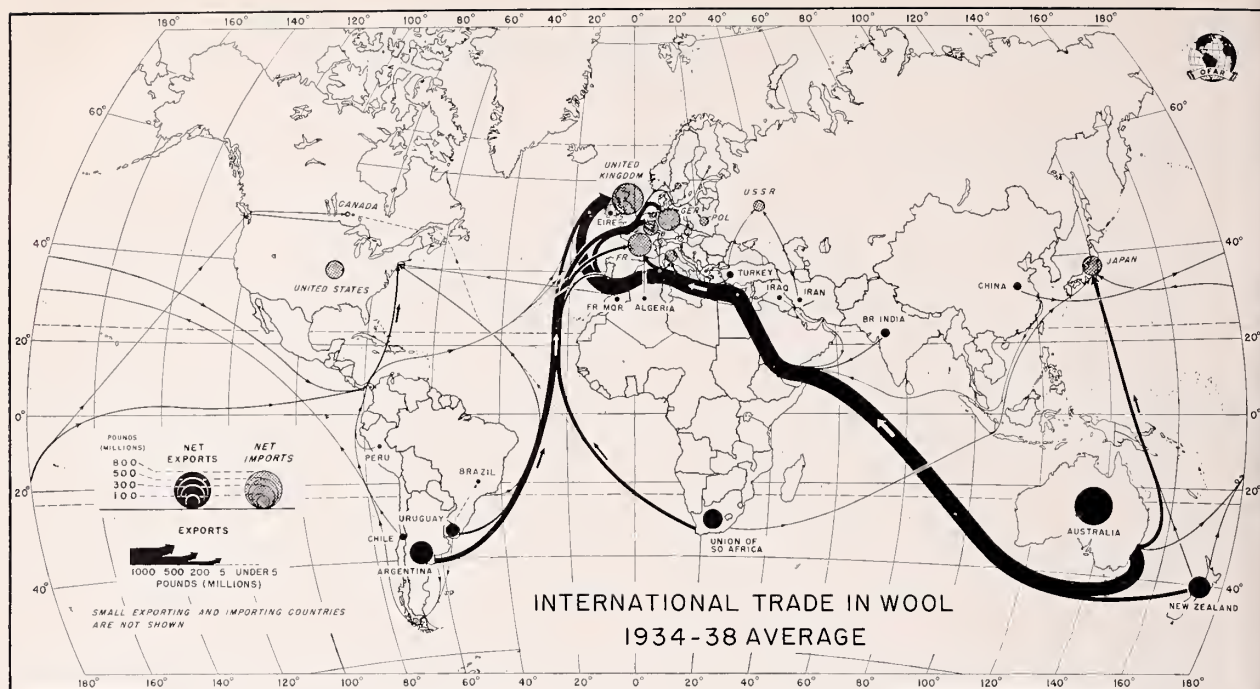
Wool trade and the manufacture of wool are significant enterprises in the United Kingdom, France, Belgium, Italy, and Germany. Large industrial segments in these countries are primarily dependent on wool and its manufacture. Likewise, wool has been receiving increased attention in the Soviet Union.

As a large part of the world production of wool enters world commerce, it is of considerable importance to ocean shipping and also to international-trade discussions. Inasmuch as wool is the primary export from some countries, it becomes the key to any trade discussions participated in by such countries.

Wool is a raw material requiring considerable skill and experience in handling and marketing. It is, however, if properly handled, a nonperishable commodity suitable for lengthy storage. Because of storage possibilities and fluctuations in supply and demand, the commodity is open to more or less market speculation.



Sheep on a western range in the United States. The sheep herder lives in the covered wagon and follows his flock as it moves over the range.



Map I.—Over 80 percent of the wool exports came from the Southern Hemisphere during 1934–38.

The dependence by producers and others on income from wool over wide areas in producing countries, as well as by important industrial segments in consuming countries, has made wool the subject of considerable governmental action in many countries. Attempts have been numerous to maintain income to producers in the producing countries and to sustain industrial activity and trade in the consuming countries. Wars and economic recessions have had important effects upon the actions of countries pertaining to wool.

Attempts in producing countries to establish price floors or support prices for maintaining incomes to producers have developed problems related to cost of raw wool to manufacturers in relation to the cost of competing fibers. Much apprehension has been caused lest other natural fibers and synthetic products replace wool in a number of uses. Considerable study has been suggested and encouraged from time to time to evaluate the major natural characteristics of wool and to unite research and technology for the purpose of capitalizing on these natural characteristics of wool. While the use of synthetic and natural

fibers other than wool has shown considerable increase, this in part results from the wider use of certain fibers and is not necessarily accompanied by a reduction in the use of wool.

Wool, especially the finer types, has been in strong demand since the end of World War II, notwithstanding the fact that the production and use of synthetic fibers have been greatly on the increase. As in the past, the world demand for wool may be expected to keep pace with production, especially the finer types used in the output of wool tops and in the production of worsted materials. Modern handling and styling have done much to attract the use of worsted materials, especially the lighter weights. The demand for good-quality, fine-type wools has been especially strong for the past 2 years, and this demand has depleted the accumulations of such wools during the war and has reduced the supply to current output, which is slightly below prewar levels.

Production

The production of wool in those countries where the output is predominantly of fine or apparel wool has been estimated for the 1948–49 season as slightly smaller than the average annual production for the years 1936–40.¹ Production was expanding during

Floyd E. Davis is Acting Head, Livestock and Wool Division, International Commodities Branch, OFAR.

¹ *Foreign Crops and Markets*, June 21, 1948, Vol 56, No. 25.

the immediate prewar period in most countries producing apparel wool and in the larger producing countries reached a peak around 1942. From that time until the current season, production declined in most of these countries owing to climatic and economic conditions and to war-caused losses. The estimated production by countries for 1948 and the world prewar geographic distribution are illustrated on the back cover of this publication. From the map one may readily see that the production of wool is well concentrated in temperate and cool climates. Sheep raising and wool production are also of economic importance in the higher altitudes and on rough terrain in a number of countries in the semi-tropical areas.

Sheep raising, and to a lesser extent production of wool, is also important in the Middle East countries and in regions of central Asia. In such areas sheep raising is a source of meat for the people and a means by which wealth and prestige are acquired. Some wools, primarily those of the coarser types, are utilized in making carpets, rugs, and similar items.

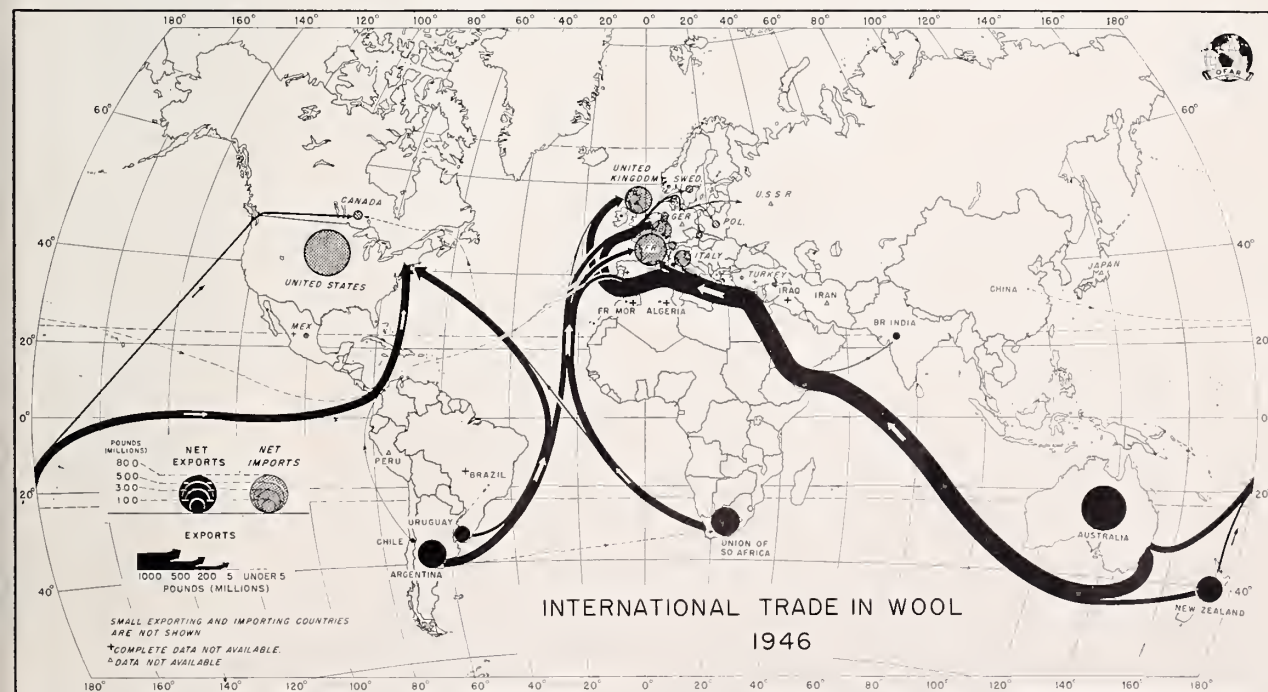
As is well known, production of wool in the United States has declined continually since 1942. More favorable incomes, in many cases, from competing enterprises are tending to extend the decline, and prospects for immediate revival are not too promising.

It is possible, however, that investigations as to the most desirable level for sheep raising and wool production in the United States will result in action directed toward stabilizing the sheep and wool industry at a level somewhere intermediate between the low point of recent years and the level that prevailed just before the downward trend began.

International Trade in Raw Wool

Slightly more than 80 percent of the wool entering world trade in the period 1934-38 (map I) came from the five principal producing countries of the Southern Hemisphere—Australia, Argentina, New Zealand, the Union of South Africa, and Uruguay. In 1946, these countries supplied 95 percent of the world trade requirements for raw wool (map II). The large volume of raw wool entering world trade in 1946, slightly over 3 billion pounds, and in 1947,² about 2.5 billion pounds, resulted from the heavy demand for wool in most consuming countries following the end of World War II, together with the large wartime accumulations in Southern Hemisphere supplying countries. These annual trade totals are 700 and 200 million pounds, respectively, greater than the average for the years immediately preceding the war. With a preponderance of the wartime

² *Foreign Crops and Markets*, July 19, 1948, Vol. 57, No. 3.



Map II.—In 1946 the Southern Hemisphere supplied a still larger proportion of wool, and the United States drew heavily on these supplies.



Sheep farm high in the mountains of southern Chile.

accumulations of wool already shipped, trade in 1948 and 1949 may be expected to return to near-prewar levels, inasmuch as production has not greatly increased. The increase that has occurred in the output of the principal exporting countries will be about offset by higher domestic consumption in these same countries.

Stocks

World stocks of apparel wool at the beginning of the 1947-48 season were estimated at 4.2 billion pounds, somewhat below earlier indications. Preliminary appraisal at the beginning of the 1948-49 selling season indicates an additional reduction in stocks to 3.7 billion pounds. This is still somewhat larger than the average for the years 1934-38, but the distribution by types is somewhat abnormal. The greater part of current stocks consist of medium crossbred and coarser wools and of "off sorts" of finer wools.

The precise appraisal of current stocks of apparel wool is somewhat obscured by uncertainty as to amounts held by continental buyers, who have been in the market heavily for the past several months. Uncertainty exists as to the extent to which this buying represents legitimate filling of the pipe line from raw-wool stocks through processing channels to retail stocks of finished goods, or is speculative buying in anticipation of further increases in prices.

International Collaboration and Negotiations

Collaboration on the part of Australia, New Zealand, and the Union of South Africa with the United Kingdom on problems relating to marketing and merchandising of wool constitutes developments of current importance. The producing countries named maintain and support the International Wool Secretariat for the purpose of promoting the use of wool. These countries also collaborate in solving wartime problems growing out of the severance of European markets, the reduction in consumption in the United Kingdom, and the resultant accumulation of supplies from the period 1939-45. These efforts culminated in the establishment of "United Kingdom-Dominion Wool Disposals Limited" (Joint Organization) for the orderly disposal of wartime accumulations. Aided by a strong demand by consuming countries, the Joint Organization has made a phenomenal advance in reduction of stocks.

The United States, as a result of the policy of stockpiling foreign wools at the beginning of the war, established support prices for domestic production. The Commodity Credit Corporation purchased wools at support prices during the war and by the end of the war had accumulated large stocks. Owing to the more recent strong demand, these stocks have been considerably reduced, much as have those held by the United Kingdom-Dominion Joint Organization.

In 1946, prior to the rapid rate in reduction of stocks, those held by both the Commodity Credit Corporation and the Joint Organization, considerable international discussion occurred for the purpose of finding a basis for the orderly liquidation of such stocks. Informal discussions culminated in the International Wool Talks held in London, November 11-16, 1946, at which both the consuming and the supplying countries were represented. These talks resulted in a better understanding within the group of supplying countries, as well as between consuming and supplying countries. While it was agreed that there was no cause for alarm in the situation, it nevertheless was recognized that wool stocks still presented a formidable problem. While conditions were not critical enough to call for a world commodity agreement, it was recommended that a Study Group be established for the purpose of keeping the problem under review. As the London Wool Talks clarified the selling policies of the agencies holding the world wool supplies, these discussions no doubt served to establish confidence on the part of wool merchants and manufacturers and to allay any fears of price declines in raw wool that might endanger their businesses.

The recommended Study Group was established and met at London on March 31, 1947, and it also found no cause for alarm but that wool was moving readily into market channels. The Study Group is still in existence, and another meeting is planned for early October 1948.

The International Wool Textile Organization held its 1948 annual conference in Amsterdam in June. Various subcommittees of this organization have been studying questions pertaining to wool characteristics and to uses of wool. Such international discussions also have taken up problems relating to compilation of statistical returns on wool production, consumption, and on wool textile machinery. In addition, wool-labeling regulations have been discussed, and resolutions for international collaboration were adopted to encourage other countries to introduce legislation along the lines of the wool-labeling pact existing between France, Belgium, the Netherlands, and Luxembourg.



Ripe for Improvement—A study of Marginal Land Farming in Greece: A survey of the Agricultural Resources of the Vouraikos River Watershed With Recom-

mendations for Improvement, by Fred J. Renner, Chief, Range Division, S. C. S., U. S. D. A., edited by Hyde G. Buller and Truman F. Peebles. 48 pp., 4 colored maps. United Nations Relief and Rehabilitation Administration, Washington, D. C., 1946. Dr. William R. Van Dersal, in a review of this report says:

To anyone who has in mind the glorious civilization of ancient Greece, it may come as something of a shock to read the present report. Here, now, is a wasted, gullied, worn-out land wholly incapable of supporting the desperate people living on it. . . . Four percent only, of the 62,000 acres of this Vouraikos River area, has escaped erosion.

The depleted range of the watershed is far overstocked, largely with goats and sheep. The forests, such as they are, have been overcut and overgrazed for centuries. . . . Water for irrigation is not enough because of wasteful, antiquated methods of using it. . . . Half the land that could be irrigated—and that is desperately needed for food production—therefore is not watered. In the valley bottoms, some of the best land is now filled with erosion sediment, which has made swamps out of it. . . .

Combine land conditions such as these with the use of farm tools characteristic of the time of Pericles, hard labor almost entirely by hand, out-of-date cultural methods, unimproved seeds, and pack-animal transportation, and some idea can be gained of the low-level living standards of the 1,600 families in the watershed.

This study of the land and its products in relation to the people living on it is a rare one in Europe. . . . It discusses, in turn, the type of agriculture now practiced, the state of the land resources, and the conditions of the people. It presents the major problems—the need for drainage, irrigation, soil conservation, and good land management. And it offers solutions to them all, plus some suggestions on supplementary sources of income that could be developed. There is an appendix showing the costs and benefits of the construction of physical improvements as well as of the management and cultural practices.

A Survey of the Economic Situation and Prospects of Europe, a publication of the Department of Economic Affairs, United Nations, 206 pp., illus. Research and Planning Division, Economic Commission for Europe, Geneva and New York, 1948. This survey is the first of a series of studies of current economic conditions to be made by the Secretariat of the Economic Commission for Europe. The material, which relates to European countries and, partly, the Soviet Union, is based on information originally taken from official and published sources, to some extent condensed or rearranged for purposes of comparability.

The study, in four parts, discusses the Recovery in Production, Recovery in Trade, Balance of Payments, and Problems of European Reconstruction. A special appendix reviews the Economic Plans of European Countries, including the fourth five-year plan of the USSR.

Plant Breeding in Finland



by **VILHO A. PESOLA**

Systematic plant-breeding work has been carried on in Finland for about 40 years. Started in 1909 at the Helsinki University Experiment Farm in Tikkurila, it was continued there as an independent division until 1926, when the farm was separated from the University and made the Central Experiment Station of Finland. In 1928, the Division of Plant Breeding was moved to a large state farm in Jokioinen, which is in southwestern Finland, about 100 miles northwest from Helsinki (61° N. lat.). There has also been in Finland, since 1913, a private plant-breeding station, Tammisto, situated near Helsinki. Leadership of the state plant-breeding work has, since 1918, been the responsibility of the author, who has specialized in rye, wheat, and pea breeding; whereas E. Huttunen has been, since 1942, the director of Tammisto. At both stations there are three other academically trained specialists working with different cultivated plants.

The actual growing season in Jokioinen is about 3½ to 4 months, that is, from the middle of May to the end of August or the middle of September. Although the season becomes progressively shorter toward the north, rye, oats, and spring wheat can be grown in Finland up to the Arctic Circle, and barley and potatoes, still farther north—up to 68° or 69° latitude. Usually the ground is covered with snow from the middle of December to the first of April, the snow being heaviest in March, usually about 12 to 16 inches in depth. January and February are the coldest months, having an average temperature of 20.6° and 18.4° F., respectively. The average

temperature during the year in Jokioinen is 39.2° F.; that of May, June, July, August, and September averages 46.9°, 55.9°, 60.8°, 56.7°, and 48.2°, respectively. Average yearly precipitation is 24.8 inches; averages for the 5 above-mentioned months are 1.6, 2.1, 2.9, 3.0, and 2.8 inches, respectively.

The plant-breeding work with the winter (fall) cereals is chiefly concerned with obtaining winter hardiness; with the summer (spring) cereals, early maturity. The stiffness of straw (resistance against lodging) must, of course, be taken into consideration, as well as disease resistance (brown and stripe rust, etc.), quality of grain, and the like.

Formerly winter rye was the most important bread cereal in Finland, but during the past few decades spring wheat has become equally significant; winter wheat is of minor importance. The native rye varieties are extremely hardy, but they have weak straw and grain of only medium quality. Foreign varieties (Swedish, German, etc.) cannot be successfully grown in Finland because of their sensitiveness to cold, but they have rather strong straw. In rye-breeding work, significant progress has been made both by selection (Härmä, Tammisto; Ensi, Jokioinen) from the native Finnish plants and by hybridization (Toivo and Pekka, Jokioinen; Oiva, Tammisto) between Finnish and Swedish (German) varieties. They are characterized by a rather good combination of winter hardiness, yielding capacity, stiffness of straw, and grain quality. At present the Finnish-bred varieties dominate in domestic rye production and have increased the annual outturn of this grain by many thousands of bushels.

Winter wheat can be grown only in the southwestern part of Finland, where clay soils prevail. Those wheat breeds having the greatest resistance to winter cold are not so hardy as the better rye varieties. Some of the pedigreed breeds of winter wheat (Olympia and Pohjola, Jokioinen) developed from the native varieties do very well in respect to winter hardiness, have grain of good, baking quality, but are poor in lodging resistance. The winter wheat now most generally cultivated, Varma (Tammisto) is a cross between Finnish and Swedish wheats and has a



Main building of the Division of Plant Breeding, Central Experiment Station, Jokioinen, Finland.

Dr. Vilho A. Pesola is Chief, Division of Plant Breeding, Central Experiment Station, Jokioinen, Finland.

good combination of the desired characteristics. Some hardy winter varieties from the United States have also been used as parents. Through the new hardy winter varieties now grown, the northern limit of winter-wheat production in Finland has been pushed from 150 to 200 miles northward; yet grain quality has been maintained at a high level.

The development of spring wheat is an interesting chapter of Finnish agriculture. At the beginning of the current century spring wheat had no actual value as a plant, but the growing of this crop increased with enormous rapidity, especially during the 1930's. At present some 371,000 acres, or about 6 or 7 percent of the total cultivated land in Finland, are devoted to spring wheat.

There are many reasons for this development, of which one of the most important is the work of the plant breeders. Early in 1930 the excellent Swedish (Svalöf) variety, Diamond, was introduced into Finland, and some years later the results of the work of Jokioinen and Tammisto materialized in the release of the Söpu and Hopea (Jokioinen) and Kimmo and Tammi (Tammisto) varieties.

The goal of the Finnish breeding work with spring wheat was to produce varieties that would mature more quickly than Diamond I and Diamond II, which required 4 or 5 days longer than, for example, Canadian Garnet wheat, and which could be grown with safety only in the southern part of Finland. Hopea and Söpu were developed from a cross between Finnish spring wheat and Marquis, the famous Canadian wheat. They are earlier than Diamond, good yielders, with rather stiff straw and grain of good baking quality—an inheritance from Marquis. The early Tammisto varieties, Tammi and Kimmo, also have grain of good quality and excel in resistance to lodging and rust. These early Finnish varieties helped materially in pushing the limit of spring-wheat growing northward—to 65° or 66° latitude—but still earlier varieties were needed for the most remote districts and have now been produced at Jokioinen. They are about 2 weeks earlier than Diamond, maturing almost as early as early varieties of barley. Thus, the plant breeder has helped spring wheat to attain a strong position in Finnish agriculture and, at the same time, has aided the people in their efforts to become self-sufficient in the production of bread cereal.

Oats, occupying about 20 percent of the cultivated land, are more important in Finland than any other cereal crop. This grain has therefore received much attention in plant-breeding work, and more than 10



An endemic rye variety with a weak straw (left) and the stiff-strawed Pekka rye (Jokioinen), on an experiment field, showing effects of a heavy rain.

new varieties have been put on the market by the breeding stations. Swedish varieties, however, especially the Goldrain, I and II, have dominated oat growing in Finland, although the Tammisto breeds—Esa, Eho, Tammi, Kytö, etc., have made a significant contribution to the oat variety collection. Particular attention has been paid in oat-breeding work to resistance to drought and to smut (*Ustilago avenae*); also, to kernel properties, especially the percentage of groats, with noteworthy results.

Barley growing is so widespread in Finland, covering the whole country from the south to the far north—70° latitude—that varieties maturing in growing seasons of varying lengths are needed. In the southern part of the country the vegetation period is about 100 days on an average, whereas in the far north it is from 75 to 80 days. Also, the utilization of the crop must be taken into consideration—whether for human or animal consumption or for making malt for the breweries.

Thus far, the fine Danish brewing variety, Binder, has predominated, but good Finnish barleys, such as Helmi (Tammisto brewing) and Vankkuri (Jokioinen feeding and groats barley), and, for northern Finland, in addition to the fine Svalöf Vega, excellent Tammisto very early varieties, Tammi, Olli, and others. The early varieties, particularly, have been of great value to Finland's agriculture.

The field pea is of no great significance in Finnish agriculture, but we hoped that the growing area might be expanded. The breeder has been a help in this respect by producing more adaptable varieties,

having good quality, and suited to the different growing conditions. Varieties with white or green seeds, containing much protein and having a strong growth, seemed to be particularly desirable, especially for growing mixed with oats. The green pea Sinikka (Jokioinen) and the white pea Ilo (Jokioinen) have given rather satisfactory results in this respect, but we hope to do better. The medium early green Koivisto, an excellent cooking pea, and early Paula and Kaleva are suitable for growing alone.

Cereals and the field pea have probably received the major attention by plant breeders in Finland. Much work, however, has also been done with other plants.

After cereals, the potato is the principal source of food in Finland, and about 5 percent of the cultivated land is devoted to this crop. In normal times it is also used for animal feed. While it can be grown all over the country, larger crops per unit of area are obtained in the north than in the south. The breeders have tried to collect as large an assortment as possible of foreign varieties, particularly English, German, and, more recently American plants. By testing and investigating these, the workers hope to determine which varieties are most suitable for cultivation under the different climatic conditions and for the various

uses made of this crop. Practically all the potatoes grown in Finland are in fact of foreign origin, except an early variety from Tammisto and the "country" potatoes that are still planted to some extent. A fine table potato is needed, one that is a good yielder and is resistant to late blast (*Phytophthora*) and potato wart (*Synchytrium*). Such a potato, with a good flavor, is an objective of current breeding work.

Some work has also been carried on with root crops. At Tammisto a swede variety was developed that has a high yielding capacity and good quality.

Since meadows and pastures account for around 50 percent of the cultivated land in Finland, the plant breeders have expended much effort on crops for these lands. Part of this resulted from the fact that foreign varieties have not, in general, competed favorably with the native strains. We have obtained best results, perhaps, with the breeding of meadow fescue (*Festuca pratensis*), of which a strain was bred at both Tammisto (pasture type) and Jokioinen (Paavo—a meadow type). The first strain of timothy (*Phleum pratense*) bred has just been released for increasing. It is a good yielder and should be resistant to drought at an early sprout stage, which is important under climatic conditions prevailing in Finland. Also, Finnish-bred varieties of orchard grass (*Dactylis glomerata*), Kentucky blue grass (*Poa pratensis*), and Red fescue (*Festuca rubra*) have been developed at Tammisto.

One objective of the work has been the development of a red clover that is resistant to cold and to *Sclerotinia trifoliorum*; also having a strong growth. The Tammisto red clover indicates some progress in this respect, but much more is needed.

While some work has been done on the fiber plants, such as flax, with new strains Aino and Martta obtained; the oilseeds, such as flaxseed, white mustard, soybean, etc.; and with some other plants, such as vetches, the horsebean, etc., the results so far have been of little practical value.

The polyploidy breeding method has been used in Finland with various cultivated plants. Rye-wheat (Triticale), tetraploid rye, tetraploid barley, etc., have been produced as raw material for further work.

Biologic investigations connected with the breeding work at the stations have afforded training to the students of the Agricultural College of the University of Helsinki. Possibly some of the Finnish-bred strains might be useful in the United States, either as such, or as material for breeding work. Close cooperation between the breeders of the two countries might be advantageous to both.



Heads and grains of Tammi barley.

An Inter-American Conference Confronts a Critical Problem

The natural resources of the Western Hemisphere are being rapidly depleted as populations expand. The Americas must therefore face the problem of less food—more people.



by WILLIAM VOGT

The population of Latin America today numbers about 150,000,000 people. This total is increasing at a rate equaled by few, if any, populations anywhere in the world. If the current rate of increase continues, by 1983—when many people now alive will still be living—it will have reached 300,000,000!

Estimates indicate that at the present time South America possesses approximately 2.2 acres of land per capita suitable for cultivation. In 1983, *merely as a result of population increase*, the amount of arable land will be decreased to 1.1 acres per capita.

The population of the United States has recently experienced the most rapid expansion in its history. Although the rate of growth is much smaller than that of Latin America, we must expect during decades an increase in the numbers of North Americans who must be fed, clothed, sheltered, and provided with water from the North American land. In addition to this, since North America is one of the areas producing surplus food, many other countries lacking land of their own depend on this continent's acres.

Meanwhile the land of the Western Hemisphere, and the renewable resources associated with it—water, forests, grasslands, and wildlife—are being destroyed at an appalling rate.

The Soil Conservation Service estimates that the United States is losing 500,000 acres of good soil per year. North Americans are harvesting their timber 50 percent faster than they are growing it and, confronted with a serious housing shortage, are cutting 10-inch logs for lumber. Probably more than three-fourths of the grazing land of the United States is



The Secretary of Agriculture, C. F. Brannan, who heads the U. S. Delegation to the Denver Conference. Oscar M. Chapman, Under Secretary, Department of the Interior, will serve as Vice Chairman.

suffering from overstocking, and its carrying capacity has been seriously reduced—in some areas almost to the vanishing point. Because of deforestation, overgrazing, and unsound agricultural practices, the rain that falls on the land is uncontrolled and is causing extremely serious floods; in the Northwestern States, a few months ago, these destroyed the housing of 50,000 people and did damage estimated at \$190,000,000. Wildlife sought for furs, food, and sport has been exterminated over wide areas, and, because of excessive hunting pressure and destruction of environment, many species are in danger.

William Vogt, Chief, Conservation Section, Pan American Union, is Secretary General of the Inter-American Conference on Conservation of Renewable Natural Resources to be held in Denver in September.



Loss of natural resources is not confined to any one of the Americas. A farm scene in the United States (left) reveals a tremendous loss of soil following heavy July rain. The overgrazed slopes on the Río Negro in Guatemala (right) resulted from too many sheep on too little land.

In Latin America, destruction of renewable resources is even more serious than in the United States. Statistics are not generally available, but surveys made by various governments and the Pan American Union have made painfully clear two factors. The first is that much of the land, because it is precipitous and lies in the Tropics, is far more vulnerable to abuse than even the land of the United States; the second is that the conservation activities being carried on throughout Latin America are even less adequate than those in the United States. Overgrazing is general. Scores of important watersheds are being ruined by deforestation for charcoal and timber. Trees with high commercial value are being destroyed with almost no replacement, floods are being unleashed, water tables are falling, and the general carrying capacity of Latin America is being rapidly destroyed.

The Inter-American Conference at Denver

The first international conference ever to concern itself with broad conservation problems and policies has been organized by the United States Government, at the request of the Pan American Union, in an attempt to begin to solve these problems. The Inter-American Conference on the Conservation of Renewable Natural Resources will convene in Denver, Colo., on September 7. The technicians and policy makers of the American Republics will there endeavor, until September 20, to define as clearly as possible the Western Hemisphere's conservation problems and will seek a solution for them. Scientific meetings will be combined with field trips, in order that the delegates and other participants may

have an opportunity to study soil erosion and control, irrigation, forest and range management, and national parks, on the ground.

The Conference will not have authority to negotiate agreements, but it will make specific recommendations, based on the exchange of ideas, to national and international organizations. It will also consider conservation problems of the Western Hemisphere in their relationship with the forthcoming United Nations Scientific Conference on the Conservation and Utilization of Resources and that of the United Nations Educational, Scientific and Cultural Organization on nature protection.



Argentina Farming and Farm Trade, by Oscar K. Moore. Foreign Agr. Rpt. No. 25, 85 pp., illus. Issued by the Office of Foreign Agricultural Relations, Washington, D. C., June 1948. This is a study of the agriculture of Argentina, with emphasis on agricultural trade and trends in Government policy with respect to such trade. The main sections of the report deal with the physical geography of Argentina, the natural resources, the people, the development of farming and agricultural trade, the natural farming regions, the principal crops, livestock industry, transportation facilities, the processing of farm products, cooperative marketing, and foreign farm-trade policy. It is generously supplied with statistical tables, maps, and charts.

Growing Teak in the Canal Zone

Plants from tropical America, such as rubber and cinchona, have added to the riches of the Far East. So teak, traditionally associated with the carved treasures of India and China, offers interesting possibilities in the West.

by WALTER R. LINDSAY

The importance of teak (*Tectona grandis*) as the source of a timber of world-wide use can hardly be over-



emphasized. The continued and increasing demand for the hard, durable wood, notwithstanding the present tendency toward steel construction, makes the plant-introduction work with teak in the Panama Canal Zone Experiment Gardens of particular interest.

Teak was first introduced into the Canal Zone in April 1926, when a package of seed, collected in Ceylon, was received from Dr. David Fairchild and Mr. P. H. Dorsett. It was handled through the United States Department of Agriculture's Bureau of Plant Industry in Washington and bore the Bureau's introduction number 66,242. The trees have made good growth, and early indications are that the timber will be well up to standard.

As the Canal Zone lies only 9° north of the Equator, its climate is tropical. The average annual rainfall at Summit, where most of the trees are planted, is 86 inches. The dry season extends from December until May and the wet season for the remainder of the year. The clay soils retain moisture well into the dry season; thus, the deep-rooted trees rarely suffer from lack of water.

Teak needs a well-drained soil. A sandy or clayey loam of good depth and drainage is most suitable. Poor shallow soils should be avoided and heavy clays are undesirable, because growth in later life has been reported to fall off in the East on plantations having such soils. Teak produces a large, deep root system, commencing with a tap root.

The tree is deciduous, and in the Canal Zone it flowers in the rainy season and ripens its fruit in the following January and February. As trees bear good fertile seeds at an early age, a considerable amount of seed is now available in the Canal Zone. Great difficulty was experienced in obtaining rapid germination

in early plantings. The seeds often lay dormant for over a year. This difficulty was overcome by soaking the seeds in water for 24 hours before planting them in nursery beds. In nursery beds the seeds should be planted at intervals of about 3 to 6 inches and covered to a depth of not more than 0.5 inch. The beds need plenty of light and should not be shaded. A light mulch is, however, beneficial in maintaining a constant high-moisture content of the soil.

Germination usually takes place in about 3 weeks, and the seedling growth is most rapid. Under favorable conditions, a height of 4 to 10 feet is often obtained in the first year.



Seedlings, 1 year old, in seedbed.

Walter R. Lindsay is Director, Canal Zone Experiment Gardens, Summit, C. Z.



Teak seed and leaves.

Although plantations can be established by direct sowing, the cheapest and best results have been obtained by using 1-year-old nursery seedling plants. Such plants should have a stem of at least one-half inch in diameter. When planting, the stem should be cut back to within an inch or so of the ground, and the roots may be trimmed to 8 or 9 inches.

Burning over of the area before planting has a most beneficial effect on the growth of teak. The burning should be done late in the dry season so that the area is ready for planting as soon as the rainy season sets in. An ideal arrangement for increased plantings of teak in tropical America would be to combine a reforestation project with migratory agriculture. In the latter, the natives fell and later burn over several acres of thickly wooded area. This area is then planted to such crops as rice, corn, yuca, etc., and kept in cultivation until it is overrun with grass and weeds—usually a matter of about 3 years. The area is then allowed to grow back to “bush,” and a new area is selected. The volunteer growth on these areas consists primarily of cecropia, balsa, apeiba, heliconias, etc., none of which have great economic value. As most of this “migratory farming” is done on Government land, the Government should insist that the farmers plant and care for a prescribed number per acre of teak, or other suitable timber trees, for the duration of his stay on the land.

Experiments conducted in India and Burma proved that plantings spaced 6 by 6 feet give best results. The tree stumps start to grow in about a week after planting and may attain a height of 10 feet or more by the end of the second year, when a canopy begins to form.

It is essential that the young plants be kept free from weeds, since teak requires full exposure to light. On good soil, thinning should take place

when the plantation is about 5 years old. In this thinning about half the plants should be removed. Subsequent thinnings are carried out on a 5-year cycle.

Teak has so far proved to be remarkably free from diseases and pests. The leaf cutting of parasol ants (*Atta* spp.) is occasionally responsible for a small amount of damage, but the nests of these ants are easily destroyed with either Chlordane or carbon disulphide.

The marked vegetative differences between the teak of India and that of Burma indicate that the two belong to different “races.” However, as there are no variations in the flowers, no botanical differentiation is made between the two races.

In Java, where much work has been done on teak, several races are recognized. The Indian forms were all found to have a bad shape, with heavy branching, and those from the north of India showed inferior height growth. Burma teak races were found to be superior, both in form and height growth. Each race was easily distinguished by vegetative differences. New plantings, for best results, should be made only from the best Burmese stock available.

Durability and resistance to decay and to termite and other insect attack, as cured lumber, are perhaps the most important features of the teak wood. It is used extensively for naval ship decking and is highly prized as a cabinet wood. Because of the great demand for the wood and the relative scarcity of it, prices have been held at a high level.

While as yet there is no supply of teak wood in the Western Hemisphere, the phenomenal growth of the few teak trees under experimental trials on the Isthmus of Panama gives much promise as to the possibility of teak production in similar regions of tropical America.



Teak plantation, about 5 years old, in Cuba.

Bilateral Trade Arrangements Of the United Kingdom



by MARY E. LONG

One of the most interesting features of Britain's trade revival in the post-war years has been the decided shift toward bilateralism. Bilateral agreements first came into prominence in the British economy during the prewar period 1933-38. They were continued in operation between the Dominions and colonial areas during World War II as a method of ensuring adequate foodstuffs for the British Isles. Since that time, with the British Government's suspension of sterling convertibility in August 1947, more and more emphasis has been placed on this form of trade negotiation between both Empire and non-Empire countries.

The general pattern of the bilateral trade arrangements of the United Kingdom shows some very definite characteristics. In almost every agreement the following four elements are embodied:

1. An offer by the United Kingdom to provide exports of such essential goods as coal, steel, and chemicals.
2. Willingness on the part of the United Kingdom to take such essential imports as food and feed products and basic raw materials.
3. Determination of quantities involved in all agreements outside the British Empire area, in order that both the United Kingdom and the other bargaining country may know the balance of trade between the two countries that may result over a 12-month period.
4. Tendency toward long-term contractual arrangements with countries supplying the United Kingdom with essential foodstuffs.

The recurrent aspects of British trade policy during 1947-48 were as follows:

1. Balancing of visible trade, country by country, except where it is expedient to permit reduction in sterling balances in exchange for uncompensated exports.
2. Inducing acceptance of as wide a range of British exports as possible, at the same time reducing to a minimum less essential imports to achieve this balance.
3. Holding out for as favorable terms under paragraph 2 as can be had, relying on coal and steel exports as trump negotiating cards.
4. Guaranteeing quantities of basic exports, when necessary, but not guaranteeing prices.

Miss Long is Agricultural Economist, Regional Investigations Branch, OFAR.

The President of the British Board of Trade indicated in the House of Commons recently that bilateral agreements "were needed to ensure essential supplies of foods and raw materials to open overseas markets to British export trade and to accomplish this without due loss of gold."

Summaries of trade agreements ¹ concluded in 1947 and 1948 with specified countries follow.

Continental Europe

SWEDEN: In an agreement negotiated in December 1947, Sweden agreed to relax import controls on a wide range of goods normally supplied by Britain and, in addition, to export to the United Kingdom mechanical and chemical pulp and wood products totaling 168,000 tons. In return, the British agreed to furnish 538,000 tons of coal and 56,000 tons of steel (guaranteed as to quantities and specifications, but not as to price).

A supplementary agreement was later concluded between the two governments, on April 6. In these negotiations, the United Kingdom contracted to furnish Sweden with 496,000 tons of coal (in addition to the established quota in the December agreement), 33,000 tons of coke, textiles and clothing valued at slightly less than \$2,000,000, and automobiles and trucks valued at \$835,000. Sweden also agreed to furnish additional commodities not specified in the December agreement, such as 50,000 cubic meters of pit props, 8,800 tons of salted herring, and an unspecified amount of paper.

If commodities are actually exchanged as negotiated, trade between the two countries should average around \$201,000,000 each way, compared with average imports from Sweden to the United Kingdom of \$89,000,000 for 1935-38 and exports from the United Kingdom to Sweden of \$44,000,000 during the same period.

DENMARK: The latest British-Danish trade arrangement was concluded in February and is effective for 9 months—January to October 1948.

During this period Denmark will furnish the United Kingdom with minimums of 45,000 tons of butter and

¹ All quantity and value stipulations of the various agreements are expressed in United States equivalents, unless otherwise specified.

25,000 tons of bacon at price equivalents of \$0.58 and \$0.40 per pound, respectively. For the 1948-49 production year, Denmark has pledged 90 percent of its exportable surplus of bacon to Britain at the aforementioned 1948 agreement price.

The United Kingdom will also continue to purchase eggs under provisions of an agreement negotiated in November 1947. During 1947-48, Denmark agreed to export 85 percent of its total exportable surplus of eggs, estimated at approximately 21,000 tons, to the British Ministry of Food at an increased average price. Terms of this agreement likewise provide for a similar purchase in the 1948-49 season, subject to a reduction in quantity should a price revision not be agreed upon during the next annual price review. In the 1949-50 season larger shipments are expected to be available at a guaranteed minimum price. The United Kingdom will also purchase other foodstuffs, including cheese, condensed milk, meat, and fish.

Britain has agreed to furnish Denmark with a minimum of 974,000 tons of coal and 56,000 tons of iron and steel, plus 11,000 tons of oilseed, petroleum products valued at \$16,000,000, and limited amounts of yarns, chemicals, and other essential goods at prices quoted to other countries, as well as to provide sterling for Danish purchases of fertilizer from Chile. Further discussions in regard to financial aspects of Denmark's trade with Britain will be resumed during the fall of 1948.

Both countries reserve the right to request special discussions of the present trade agreement, should developments in world market prices, or other factors, materially alter the basis of agreement.

The value of trade payments between Denmark and the sterling area during the period of the agreement is expected to total about \$200,000,000 in each direction and is to be governed by an Anglo-Danish Monetary Agreement of August 16, 1945.

FINLAND: The 1948 trade with Finland will be governed by the terms of an agreement reached on March 2. The British Board of Trade has announced that Finland has agreed to supply the United Kingdom with 209,000 tons of chemical wood pulp, 33,000 to 44,000 tons of mechanical wood pulp, and 150,000 cubic fathoms of pit props, as well as sawn softwood, plywood, and other timber products in exchange for 560,000 tons of coal and coke and 45,000 tons of steel.

BELGIUM: A trade-and-payments agreement with Belgium was concluded in March, effective for the period January 1, 1948, to June 30, 1949.

The negotiations provide for payments settlements

on the basis of the Anglo-Belgium Monetary Agreement of November 1947, which agreement stipulates that Belgium should hold a maximum of sterling valued at \$108,000,000. The new trade agreement carries, however, the additional provision that payments between the two areas should be so regulated as to be brought into balance in the shortest possible time, to avoid further losses of gold by the United Kingdom, and to assist in bringing payments into equilibrium. The Belgian Government agreed to restrict the acceptance of sterling from countries outside the sterling area during the 18-month period of the agreement.

Under the trade terms between the two countries, the United Kingdom hopes to secure steel, flax, fertilizers, copper, tin, and uncut diamonds from both Belgium and Belgian Congo, whereas Belgium has agreed to increase its imports of coal, sisal, oil, and less essential goods; namely, products readily available for export from Britain.

NETHERLANDS: As a result of two separate trade negotiations concluded with the Netherlands in February, the United Kingdom will receive from that country in 1948 shipments of foodstuffs, principally eggs, bacon, dairy produce, potatoes, and fruits, valued at about \$100,000,000; also 73,000 tons of strawboard and 900 tons of flax, and in return will provide the Netherlands with 500,000 tons of coal, 34,000 tons of steel, 56,000 tons of superphosphate, and other industrial products. The total value of the trade between these two countries during 1948 is expected to exceed \$280,000,000, representing an increase of 20 percent over 1947.

SWITZERLAND: At the end of January, the British entered into a trade and financial arrangement with Switzerland governing trade between the two areas throughout 1948. The following commitments were agreed to by the United Kingdom:

1. Exportation of 134,000 tons of coal to Switzerland.
2. Importation of a "limited number of goods of a type traditionally supplied by Switzerland" under definite quotas, none of which are to exceed in value the 1938 level of United Kingdom imports from Switzerland.
3. Resumption of tourist trade to Switzerland to a maximum of \$28,000,000. Such trade is to be allocated in two installments, with the earlier installment restricted to 75 percent of the latter.

Certain special commitments were also made by the Swiss; namely:

1. Increased imports to be permitted from the sterling area by authorization of importation of all classes of goods of sterling-area origin. The Swiss, in return for the British allowance for tourist expenditures, are also prepared to receive a wide range of British exports, including a substantial quantity of nonessential commodities.

2. The volume of Swiss exports to the sterling area is to be limited to a specified quota of \$81,000,000 and to be allocated on the basis of installments of the same 75-percent limitation applicable to tourist expenditures.

3. Should the trade balance at the end of 1948 result in favor of the United Kingdom, the Swiss have agreed not to use this balance to reduce their accumulated sterling.

FRANCE: Although no specific bilateral agreement exists, trade programs between the British and the French are governed by a financial agreement concluded in 1946. This agreement provides for the maintenance of an Anglo-French Economic Committee which is responsible for all trade and balance-of-payment discussions. In view of Britain's exchange difficulties, the Committee agreed in November 1947 that the British should reduce their imports of nonessential items from France. In substitution of luxury items, Britain signified its need for such essential commodities as wood products, steel, glass, and railroad equipment. As partial exchange for these imports, France agreed to accept imports of copper sulphite, which was featured in prewar trade with the British, but which has since the war been domestically produced in France under subsidy protection, and to withdraw the subsidy.

The most recent discussions of the Committee were held in March, when the following revised commitments were made:

1. British imports from France were to be substantially increased over the 1947 level for a number of items.

2. In view of the deterioration of French sterling balances since 1947, increases in French imports from the United Kingdom were for the time being not to be recommended by the Committee.

British imports of French goods under the present trade arrangement are expected to increase in value during 1948 by some \$60,000,000 and comprise chiefly such commodities as chemical products, fruits, vegetables, textiles, potash, and phosphates.

ITALY: Trade and economic arrangements were concluded with Italy in January 1948. Under the trade portion of these negotiations, the United Kingdom offered to provide Italy with 448,000 tons of coal, wool, rubber, dyes, mineral oils, hides, and tin and to assist Italy in obtaining substantial supplies of copper from Chile. In exchange, Italy hopes to export fruit and vegetables to the United Kingdom during the first half of 1948 and to furnish such less essential goods as marble, oranges, wine, handicrafts, rayon, silk, and woolen textiles. Trade between the two areas is expected to balance at an estimated \$180,000,000, each way.

SPAIN: Conclusion of a monetary and commercial agreement with the United Kingdom was announced by the Spanish Government on May 15. By the terms of this agreement, should the full program be realized, trade for each country is expected to total about \$160,000,000. Spain expects to receive coal, cotton, petroleum, rubber, jute, sisal, railroad equipment, heavy machinery, and chemical products from Britain. The United Kingdom, in return, has agreed to purchase iron ore, potash, cork, pyrites, and food products, including oranges, tomatoes, bananas, fruit pulp, and wine. Payments for the period June 28, 1948, to March 31, 1949, will continue to be governed by the Anglo-Spanish Monetary Agreement of March 28, 1947.

PORTUGAL: The purely trade-arrangement portion of this agreement, endorsed in January, was, for the most part, stated in very general terms. The United Kingdom offered to purchase 15 million gallons of port wine and a specific tonnage of sardines. Portugal, however, agreed to permit the importation of substantial supplies of coal and a wide range of British manufactures. No quotas were established for items to be made available to either country, other than the United Kingdom's calculated expectations that exports to Portugal in 1948 would total some \$64,000,000 and imports from Portugal, approximately \$48,000,000.

Negotiations have since been renewed for further amendment of the Anglo-Portuguese trade program for the second half of 1948. Portugal is desirous of selling more food, wine, and perishable items to the United Kingdom, such as pineapples from the Azores, and also wishes to find a greater market in Britain for raisins, ores, turpentine, and cork in exchange for more British machinery, machine tools, and coal.

POLAND: A trade agreement negotiated in 1947 was intended to be effective for a period of 3 years, beginning June 1, 1947. Poland agreed to supply Britain with foodstuffs, agricultural products, coal, glass, porcelain, and furniture in exchange for chemicals, machinery, spare parts, and technical equipment. The agreement did not operate as planned, and new negotiations, begun in January 1948, were concluded in early March. This agreement provided for purchase from Poland by the British Ministry of Food of additional supplies of bacon, eggs, poultry, tinned hams, and sugar to a value of about \$60,000,000 for 1948-49. British commercial credits of some \$24,000,000 were established for Polish financing of British exports in lieu

of insurance guaranties provided in the 1947 agreement. An additional \$6,000,000-fund was created for Polish purchases of wool, rubber, and other essential commodities.

HUNGARY: Under provisions of an agreement signed in early August 1947, the United Kingdom contracted for imports of foodstuffs and raw materials from Hungary for 3 years, beginning August 1, 1947, and ending July 31, 1950. Foodstuffs imports by the United Kingdom, totaling approximately \$2,000,000 in 1947, were increased to about \$24,000,000 in 1948, with total imports from Hungary doubled in value under the terms of a revised agreement consummated in April of this year. Aside from poultry, bacon, and eggs, the United Kingdom expects to import such other foods as fats and oils, pulses, fresh fruits and vegetables, canned fruit and vegetable pulps, canned meats, and dried fruits. Other imports from Hungary in 1948 will consist of textile piece goods, chinaware, footwear, timber, leather, and hemp yarns. The British also agreed to make down payments to facilitate Hungarian exports of food and agricultural products through July 1949, and prices for Hungarian industrial exports to be delivered prior to March 1949 were raised.

Hungary expects to benefit by the two-way trade arrangement through import of raw materials, breeding stock, feeds, and technical advice from the United Kingdom.

BIZONIA (GERMANY): Although no formal trade agreement was deemed necessary, a review of trade between the Anglo-American Zone of Germany and the sterling area was conducted by the Joint Export-Import Agency and the British Board of Trade in May 1948. The value of trade flowing in each direction is expected to total about \$80,000,000 for the calendar year 1948. The principal products to be exported from the Zone are timber, heavy steel scrap, textiles, chemicals, machinery, and other manufactured items. From the sterling area, it expects to obtain raw materials, such as wool, cotton, tin, hides, rubber, and jute, and other miscellaneous items.

Latin America

ARGENTINA: Under the terms of the new agreement concluded on February 12, Argentina has agreed to furnish the United Kingdom during the period 1948-49, ending March 31, with the following commodities (in 1,000 tons): Corn, 1,402;² bran and

² 33,000 tons of barley may be substituted for an equal amount of corn, if available.

pollards, 94; linseed oil, 22; oilseed cake and meal, 110; tallow, lard, and other fats, 50; frozen meat and offals, 448;³ and canned beef and mutton, 22.

The United Kingdom agreed to pay an equivalent of \$440,000,000 in advance for Argentine goods by transferring the British railway interests, valued at \$604,500,000, to the Argentine Government. In full liquidation of the British railway interests, sterling valued at an additional \$200,000,000 was advanced by the Argentine Government.

Furthermore, the United Kingdom agreed to furnish Argentina with the following quantities of raw materials for manufacturers in Argentina: Petroleum products (composed mostly of gasoline, crude oil, lubricating oils, etc.), 2,585,000 cubic meters; coal, 1,000,000 tons; finished and semifinished steel, 84,000 tons; steel panels and bridges, 3,000 tons; tin plate (29,000 tons of this commodity must be used in canning foods for British), 38,000 tons; zinc sheets, tin, finished and semifinished lead, and asbestos, 1,000 tons each; agricultural machinery, 11,000 tons; cutlery, 100 tons; inoxidable steel, 56 tons; caustic soda, 18,000 tons; and solvay soda and other chemical products, 22,000 tons.

Britain has also agreed to pay Argentina an over-all average price increase of about 30 percent for all commodities, excepting meats, as compared with the prices paid under a former agreement. A new price for corn has been agreed upon at approximately \$2.72 per bushel.

BRAZIL: With the conclusion of 3-month trade negotiations between the United Kingdom and Brazil, an agreement was signed on May 21.

In exchange for imports of Brazilian meats, rice, sugar, coffee, oranges, cocoa, brazil nuts, cotton, hides, timber, vegetable oils, skins, and industrial diamonds, the United Kingdom expects to increase shipments of manufactured goods to Brazil. The principal commodities which the British have agreed to export to Brazil in 1948, are coal, tin, tin plate, caustic soda, soda ash, abrasives, petroleum, and petroleum products. The terms of the agreement also provide that all payments between the two countries, over a 4-year period, ending in 1951, shall continue to be made in sterling and that each country's trade in 1948 shall approximate \$120,000,000.

³An important agricultural provision of this agreement is that the British Ministry of Food can no longer assign portions of its bulk meat purchases in Argentina to other European countries. This practice had been employed in past agreements which provided for subdivision of meat allotments to France, the Netherlands, and Belgium.

CHILE: Press reports indicate that a payments agreement was signed between the British Government and Chile on June 25, 1948. With financial relations between the two countries improved, Chile's trade with the United Kingdom and the entire sterling area is expected to increase. Negotiations are still in progress, however, regarding actual trade transactions between Chile and the United Kingdom.

URUGUAY: Although the final terms of the financial agreement involving the sale of the British-owned railways in Uruguay to the Uruguayan Government were not completed until March 2, 1948, successful negotiations for an Anglo-Uruguayan meat contract were concluded in August 1947. This arrangement provided for sales of substantial amounts of Uruguay's exportable meat surpluses to Britain until 1950, at prices fixed 7.5 percent higher than those in a former contract and subject to yearly revision. Shipments to the United Kingdom have been affected, however, by a new decree on meat, issued by the Uruguayan Government in January 1948. This order directs the major portion of surplus meat supplies to the open international market, thus limiting the amount available for export to the United Kingdom after domestic consumption requirements are met.

Empire Countries

CANADA: A long-term wheat agreement was entered into by Canada and the United Kingdom in July 1946 whereby Canada contracted to supply the United Kingdom with a total of 600,000,000 bushels of wheat over a 4-year period, ending in 1949-50. The United Kingdom agreed to purchase a minimum of 160,000,000 bushels in each of the 2 years 1946-48 at a fixed price of \$1.55 per bushel and 140,000,000 bushels in each of the 2 crop years 1948-50 at \$1.25 and \$1.00 per bushel, respectively. Other features of the agreement were that prices for years other than 1946-48 were subject to review, in accordance with general market conditions, and that Canada should furnish the United Kingdom with additional quantities of wheat not to exceed a maximum of 4,700,000 bushels in any crop year—the additional amount to be furnished on the basis of each year's crop production. In subsequent negotiations, the British Ministry of Food agreed to pay Canada \$2.00 per bushel for contracted wheat, beginning August 1, 1948.

Other contracts involving Canadian food supplies were completed in January to cover shipment of livestock products for the year 1948. The purchase arrangement calls for the delivery of 195,000,000 pounds of bacon at \$36 per 100 pounds, 50,000,000

pounds of beef (bone-in basis) at a top-grade price of \$27.50 per 100 pounds, 80,000,000 dozen eggs at an average price of about 53 cents per dozen, and 50,000,000 pounds of cheese at 30 cents per pound. Although Anglo-Canadian trade relationships were subject to further review during 1948, the above-mentioned prices and quantities of foodstuffs will be effective for 12-month periods during 1948-49, depending on individual commodity purchases.

AUSTRALIA: Negotiations were consummated in December for the delivery of 80,000,000 bushels of wheat to the United Kingdom from the current Australian harvest at a price of approximately \$2.74 per bushel, f. o. b. Australian ports. Delivery of part of this grain will be made to British overseas areas, such as Ceylon, Malaya, and the Near East, in the form of flour. The agreement also provides that an additional 5,000,000 bushels shall be made available to the United Kingdom, should Australia's current wheat harvest exceed 210,000,000 bushels of average-quality grain. (Official estimates place Australia's wheat crop at 228,000,000 bushels.)

The United Kingdom is now receiving all Australia's surplus exportable supplies of meat under provisions of a new 2-year agreement entered into January 1948, which will continue until September 1950. Exports under a previous arrangement in 1947 totaled some 200,000 tons of meat, including beef, mutton, lamb, and pork.

The British Government has also indicated in the provisions of this most recent agreement that it will be prepared for further negotiations prior to December 31, 1948, with the idea of extending the present contract beyond 1950. Prices which were revised in March will continue in effect to September 1948; namely, average prices of \$13.90, \$7.50, \$8.30, and \$15.30 per 100 pounds for first-quality grades of lamb, mutton, beef, and pork, respectively.

British negotiations were in progress during February for an extension of the present purchase agreements for butter and cheese from Australia from August 1, 1948, to August 1, 1952, at estimated prices of 37 cents per pound for first-grade butter and 21 cents for first-grade cheese. The original contract, consummated in 1942, called for the delivery of Australia's entire surplus of butter and cheese to the United Kingdom at choice-grade prices of approximately 20 and 12 cents per pound, respectively.

A new contract for the purchase of eggs by the British Ministry of Food for a 5-year period beginning July 1, 1948, was announced in February. This agreement calls for an equivalent of 105,000,000 dozen

shell eggs per year at 37 cents per dozen as compared with the annual 30,000,000-dozen purchase now existent at 33½ cents per dozen. It is expected that this new agreement will gradually increase the United Kingdom's total supply available for consumption by 7 or 8 eggs per capita per annum by 1950 or 1951, or a total of about 375,000,000 eggs.

The British Ministry of Food has also contracted for 3,000,000 bushels of fresh apples and 500 tons of dried apples, to be supplied mainly from Tasmania.

NEW ZEALAND: The United Kingdom Government entered into bulk-purchase arrangements with the New Zealand Government within 3 months after the beginning of World War II. These agreements provided for the purchase of exportable surpluses of butter, cheese, meat, wool, tallow, hides and skins, fruit, eggs, and scheelite at guaranteed prices per annum on the basis of estimated costs of production.

Latest information concerning 1948 discussions between the United Kingdom and New Zealand indicate that the British have agreed to purchase almost all New Zealand's exportable surpluses of butter and cheese, beginning August 1, 1948, through July 31, 1955. Prices for both commodities will be subject to annual review on the basis of 7.5 percent minimum variations from each previous year.

The British Ministry of Food announced on July 28, 1948, the conclusion of an agreement for the purchase of New Zealand's exportable surplus of lamb, mutton, veal, and beef until September 30, 1955, and pork until 1952. Prices for 1948-49 will be effective in October and subject to annual review on the same basis as cited above for butter and cheese.

UNION OF SOUTH AFRICA: Under the commodity-purchase provisions of the Gold Loan Agreement made with the United Kingdom by the Union of South Africa, the United Kingdom agreed to take from \$12,000,000 to \$13,000,000 worth of deciduous fruit each year during the 3-year period of the agreement. Oranges, grapefruit, and lemons are the citrus fruits desired, and grapes, pears, plums, apricots, peaches, and nectarines make up the deciduous-fruit requirements.

An egg-contract agreement between the Union of South Africa and the United Kingdom was completed during July-September 1947, providing for the purchase by the United Kingdom of 100,000 cases, 30 dozens to the case, at a basic price of 35 cents per dozen. This contract is effective through 1948 and subject to renewal until 1950, with price revisions each year.

SOUTHERN RHODESIA: The United Kingdom Government late in December 1947 entered into a 5-year agreement for the purchase of two-thirds of the total tobacco production of Southern Rhodesia. Southern Rhodesia is anticipating an expansion of its tobacco-growing industries and is hoping for a flue-cured tobacco crop of 70,000,000 pounds per year as compared with an average production of about 22,000,000 pounds in prewar years. In the event that British consumption of tobacco should be somewhat curtailed because of increased taxation, the British Government guarantees to purchase a minimum of 40,000,000 pounds per year.

BRITISH EAST AFRICA: Effective July 1, 1947, the British Ministry of Food entered into a 5-year contract with Kenya, Tanganyika, and Uganda for annual purchases of approximately 15,000 tons of mild coffee and 11,000 tons of hard coffee through the 1951-52 crop season. This contract does not provide for the purchase of the entire exportable surplus from these areas, since this purchase is intended for British domestic consumption and not for export.

BRITISH MALAYA: Continuing a wartime policy of British purchases of palm oil from Malaya, a long-term contract was entered into between the Malayan Government and the British Ministry of Food for the purchase of the entire Malayan output of palm oil at a fixed contract price, estimated at \$189 per long ton, plus or minus half the difference between the fixed price and the world price. The present contract is effective for the 4-year period January 1, 1947, to December 31, 1950. Prior to 1947, however, the British Ministry of Food had made bulk purchases of palm oil from Malaya on an annual basis.

OTHERS: In continuance of Britain's prewar policy of importing sugar from British Empire sources, the United Kingdom contracted in 1944 for the purchase of all exportable surpluses of sugar from Australia, Fiji, British West Indies, British Guiana, Mauritius, British East Africa, and the Union of South Africa over a 5-year period, expiring in December 1949. Prices have been negotiated annually, and recent information of an unofficial nature indicates that the United Kingdom is considering a further written purchase agreement for another 5-year period beyond 1949.

As of January 1, 1946, the British Ministry of Food contracted with Ceylon for exports of coconut products for a period of 5 years from that date, price revisions having been made since then from time to time. Aside from considerable quantities of white coconut

oil, the British agreed to purchase 11,000 tons of dessicated coconut during the first 2 years, 1946 and 1947; 17,000 tons during 1948; and 22,000 tons a year in 1949 and 1950. Exports of fresh nuts under the terms of the contract were limited to 9,000 tons a year, whereas exports of processed coconut products were limited to 1,000 tons for each of the first 3 years and roughly 2,000 tons a year for the last 2 years.

In continuation of the policy prevailing in war years, the Ministry of Food buys copra and coconut oil from Zanzibar and Pemba for consumption in British East African countries and Middle Eastern areas. At the present time the United Kingdom is assured of all the exportable supply of these two commodities under a long-term contract arrangement existent until January 1, 1951. Prices to producers have increased steadily each year under the provision of annual price reviews, but copra exports are still far behind average prewar shipments of 20,000 tons.

Other Non-Empire Countries

EIRE: Irish dissatisfaction with prices received for agricultural exports to British markets led to revisions of the 1948 trade and financial agreement negotiated by the two Governments in November 1947 and to creation of new legislation superseding the Anglo-Irish Trade Pact of 1938.

The negotiations concluded on June 22, 1948, provide for payment of higher prices to Eire for exports of fat cattle on a guaranteed price basis equal to prices paid to British farmers fattening Irish store cattle. In addition Eire is committed to furnish the United Kingdom with the bulk of its exportable surpluses of meats, seed potatoes, flax, dairy products, poultry, and poultry products for a 4-year period beginning July 1, 1948. The Ministry of Food has agreed to pay in the form of an increased price a proportion of the cost incurred by the Irish in promoting an agreed scheme for increased development of Eire's poultry industry.

Further provisions of the arrangement are that Britain shall furnish Eire with coal,⁴ substantial quantities of farm machinery (this item was increased over the original agreement for 1948), textile raw materials, and small-scale industrial equipment. It is agreed that excesses of exports of British manufactures to Eire over requirements shall be diverted to other markets.

As a further concession, Eire will be able to impose quantitative restrictions on United Kingdom exports allowed free entry under provisions of the 1938 trade

⁴ To equal 1948 imports in 1949, namely, 1,790,000 tons.

agreement and to impose duties on free-list items up to 40 percent of the value of such imports.

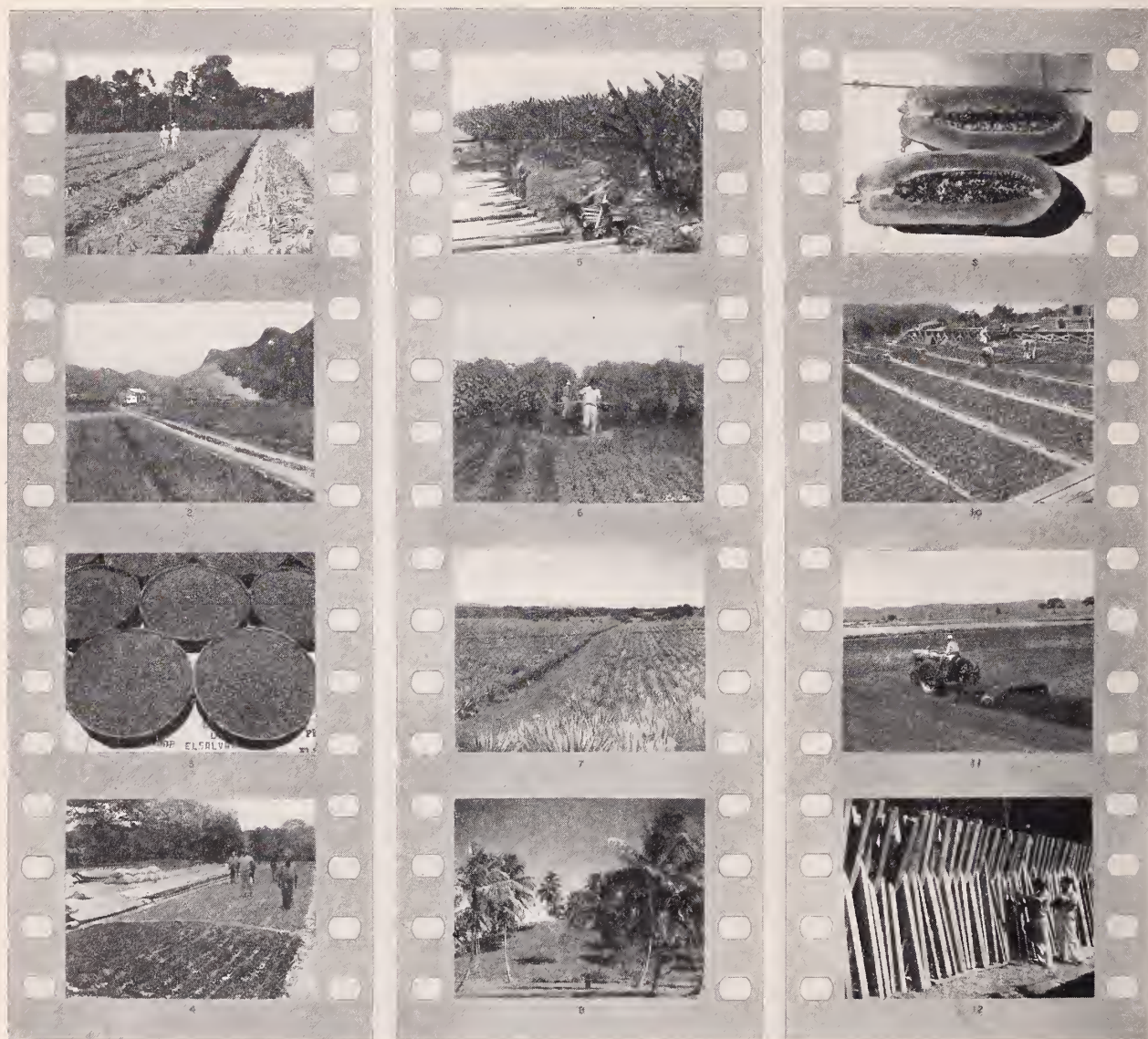
ICELAND: Negotiations with Iceland for the purchase of herring oil, herring meal, and frozen fillets for the British Zone in Germany did not terminate until June 10, owing to price considerations. The British Government has agreed to purchase, during 1948, approximately 14,000 tons of herring oil, 9,000 tons of frozen fillets, and 5,500 tons of herring meal, with options on further supplies of herring oil and meal. Iceland in exchange will receive coal, steel, sisal, and cement from the United Kingdom. Import licenses will be issued to the British by the Government of Iceland to the amount of Iceland's sterling earnings.

SOVIET UNION: An agreement somewhat in the nature of a barter arrangement was consummated between the United Kingdom and the Soviet Union in late December 1947. By the terms of this agreement, Russia agreed to furnish Britain with 547,000 tons of barley, 243,000 tons of maize (corn), and 112,000 tons of oats in 1948, between February and September. In exchange, the United Kingdom agreed to provide the Soviet Union with raw materials, such as wool, rubber, aluminum, cocoa beans, and coffee, in addition to such manufactured items as rails, lumbering machinery, railroad equipment, scientific apparatus, ore crushers, and electrical equipment.

Long-term aspects of trade arrangements with Russia aim at securing a balanced trade on an expanding basis between the two Governments and provide for further negotiations in 1948, at which time the payments position and a balanced program of shipments will be reviewed. On the Russian side, these shipments will probably include wheat, pulses, and canned goods, whereas the British expect to supply industrial goods and equipment, including tin plate.

EGYPT: A financial and trade agreement was consummated between Egypt and the United Kingdom in the early part of January. The terms of the negotiations specified substantial supplies of cotton for export from Egypt to Britain in exchange for relaxation of import restrictions by Egypt to permit the importation of a wider range of less essential commodities. The specific quantities of cotton to be furnished the United Kingdom under the terms of the agreement are not known. Shipments of cotton from Egypt to the United Kingdom in 1947, however, totaled about 115,000,000 pounds, valued at a little more than \$40,000,000, as compared with about 258,000,000 pounds in 1938, valued at around \$30,000,000.

Crops of the Americas



Cooperative efforts in the other Americas to improve the production of crops that are important to consumers in the United States are shown in the new slidefilm "Cosechas de las Americas"!

Selected pictures from this slidefilm showing aspects of this Technical Collaboration program appear above, as follows: (1) Rubber in nursery, Guatemala; (2) rice, variety trials, Peru; (3) coffee, ready for bagging, El Salvador; (4) cacao (cocoa) beans, drying, Ecuador; (5) abacá (fiber), on plantation, Guatemala; (6) kenaf (fiber), experimental plantings, Cuba; (7) henequen (fiber), on plantation, El Salvador; (8) co-

conut palms, Panama; (9) papaya (tropical melon), Canal Zone Experiment Gardens; (10) cinchona bark (for quinine, etc.), drying, Guatemala; (11) tractor plowing, cooperative experiment station, El Salvador; (12) balsa lumber, drying, Ecuador.

The slidefilm, No. 684, was prepared by the Office of Foreign Agricultural Relations and the Extension Service, and is released through Federal-State Extension Service channels.

The photographic work was made possible by funds provided through the U. S. Interdepartmental Committee on Scientific and Cultural Cooperation.

INTERNATIONAL *Agricultural News*

A Cuban Fiber Expert Comes to the United States

Dr. Julian B. Acuña, Head of the Department of Botany, Cuban Agricultural Experiment Station, Santiago de las Vegas, Cuba, arrived in Washington on June 28. He is spending 3 months in this country in the interest of a fiber-research project on which the United States and Cuba are collaborating. After consulting with officials of the Department of Agriculture for several days, he left on a trip to various parts of this country to confer with fiber-research agronomists, breeders, and engineers.

His present itinerary includes such points as New York City; Boston, Mass.; Madison, Wis.; St. Louis, Mo.; Corvallis, Oreg.; San Quentin and El Centro, Calif.; New Orleans, La.; Boynton and Belle Glade, Fla.; and Pisgah, N. C. He has previously traveled through most of the Central American countries and the Caribbean area and has thus had the opportunity for first-hand study of many of the problems connected with fiber production.

Dr. Acuña's visit to the United States was facilitated through a grant-in-aid from the Department of State, awarded at the request of the Department of Agriculture.

Tropical and Subtropical Soils Conference in England

Nearly a hundred soil scientists representing almost all the British Dominions and colonies, participated in the conference on Tropical and Subtropical Soils, which was held under the auspices of the Colonial Office, in England, June 14-26, 1948. Five foreign countries were also represented. Robert L. Pendleton, of the Technical Collaboration Branch, OFAR, was one of the four soil scientists attending from the United States.

During the first week, morning, afternoon, and evening meetings were held at the Rothamsted Experimental Station at Harpenden. The papers and discussions were concerned particularly with problems of soil mapping and soil fertility. The second week was spent in studying soil conditions in various parts of central and southern England, with particular attention to the problems of reforestation

of heath and other inferior soils. As is always the case with such conferences, according to Dr. Pendleton, the most important and enduring features were the interchange of information and the establishment of new connections with fellow scientists from distant and often very isolated parts of the world.

Fruit Specialist Continues Foreign Market Study in Europe

Fred A. Motz, international fruit specialist of OFAR left Washington in July for further studies and reports on European market outlets for United States fruits under the Department of Agriculture's Research and Marketing Act.

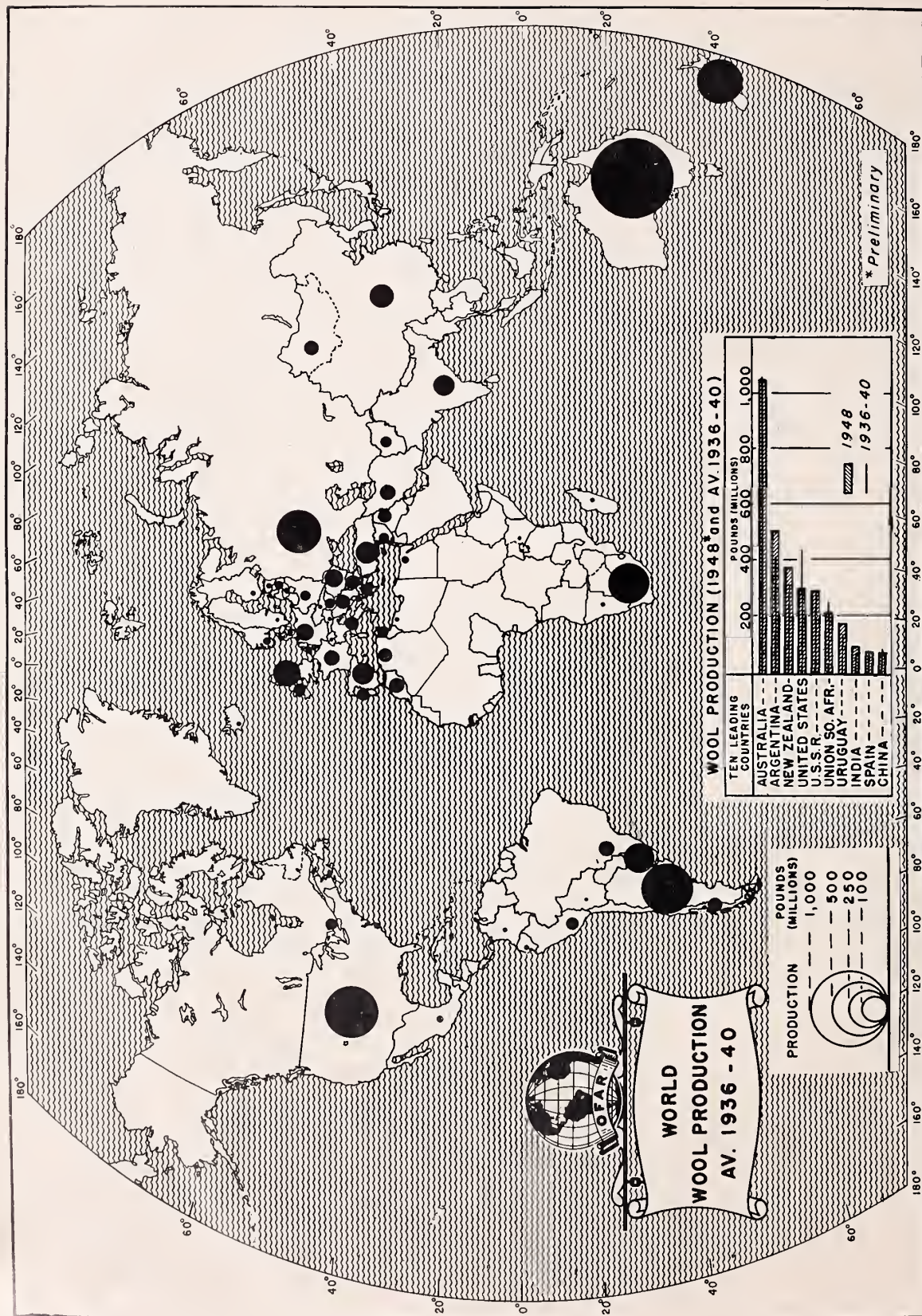
After conferring, in Paris, with representatives of the governments of western Europe on import requirements under the European Recovery Program for 1948-49, Mr. Motz will visit England and possibly other European countries. His initial survey of the western European fruit situation was made last winter and reported in *The Market for United States Fresh Fruit in Postwar Europe*, Foreign Agriculture Circular FDAP 1-48, issued by the Office of Foreign Agricultural Relations in April.

U. S. Ambassador Visits Panama's Divisa Farming School

United States Ambassador Monnett B. Davis, on a tour of the central Provinces of Panama late in June, made his headquarters at the Divisa Farming School. In an address to the students, Ambassador Davis, according to press reports, stressed the importance of agriculture in any nation's economy. In the case of Panama, he called attention to the country's extensive natural resources for a varied agriculture and the bright prospects for improved enterprises.

He praised the efforts of the Panamanian Government to train farmers, expressing satisfaction that the United States had been instrumental in aiding in the program for increased production by supplying specialists requested by Panama. He called particular attention to the demonstrations of W. P. Sellers, a member of the U. S. Mission to Panama, in the production of rice and spoke of the contribution made by Col. Stevenson, a veterinarian in the U. S. Armed Forces, who has aided in the control of animal diseases and in livestock improvement in Panama.

Finally, the Ambassador expressed gratification that he had been able to visit the school and congratulated the students on their good fortune in attending an institution that was doing so much toward the welfare and prosperity of the country.



The 1948 estimate of world production of wool, 3,830 million pounds, is slightly smaller than the annual average produced during 1936-40. In the inset bar chart comparisons show that of the 10 leading countries Argentina and New Zealand increased their output, but Australia, the largest wool producer, had a slight decline. In the United States and South Africa greater reductions occurred, which largely accounted for the smaller world production this year as compared with the 1936-40 average.

